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Insect Control, D-1
(Annual Report)

February 25, 1930

ANNUAL FOREST INSECT STATUS REPORT

Season of 1929

INTRODUCTION

For the past six years the forest rangers of District 1 have submitted to the District Forester an annual report covering the status of insect conditions within their districts. Each year these reports are compiled and summarized in a brief statement, a copy of which is sent ^{to} each Supervisor of the District with the idea of having it routed through all ranger districts. This information, together with a brief account of the more important control projects, forest insect surveys, and experimental studies, depicts in a fairly accurate manner the present status of insect conditions and project activities within the District for the information of all forest officers concerned. In addition to this report a card summary of these reports and a map file showing locations of outbreaks are maintained at the Coeur d'Alene Station of the Bureau of Entomology which provide an excellent history of all reported insect infestations within each Forest.

Though the data presented by the rangers become more reliable each year, as more experience is secured, there is still considerable essential progress to be made. Work of this character is but a phase of forestry falling entirely within the realm of the forest ranger.

*Micrographed report sent to all Supervisors
by Mr. E. C. ...
See letter Feb. 26, 1930 by Mr. E. C. ...
Reply March 3 by Mr. Koch*

It is only from the prompt and accurate reporting of abnormal insect conditions within our forests by the rangers and other field officers, that serious epidemics can be prevented through the treatment of incipient outbreaks. The submission of these reports does not require special training but it is necessary that the importance of the work be fully realized by the officer making the report and that he familiarize himself with each situation reported upon. Some field work will nearly always be necessary in order to secure the information which is necessary if an accurate picture of the situation is to be presented.

SUMMARY OF RANGER REPORTS FOR 1929

Ranger reports were received from 149 areas, which is a decrease of five over the previous season. Twenty-nine of these reports were negative in character or the infestation proved to be of such minor importance that the inclusion of the area within this summary was not warranted. Of the 120 reported insect infestations, 56 were considered as increasing, 29 decreasing, and 35 in a normal status. There were 30 recommendations for control, while in the other 90 situations reported upon no control was thought necessary. All of the 24 Forests reporting indicate insect outbreaks. No reports were received from the Beaverhead as this Forest was covered by an insect survey during the past season.

SUMMARY OF DIFFERENT INSECTS REPORTED UPON

<u>Name of Insect</u>		<u>Increasing</u>	<u>Decreasing</u>	<u>Normal</u>	<u>Total</u>
Mountain Pine Beetle	1929	45	14	23	82
	1928	33	13	10	56
Western Pine Beetle	1929	--	3	4	7
	1928	2	2	1	5
Douglas Fir Beetle	1929	2	1	2	5
	1928	5	4	2	11
<u>Scolytus subscaber</u>	1929	1			1
	1928	--	--	1-	1-
<u>Ips oregoni</u>	1929		1		1
	1928		1		1
Spruce budworm	1929	4	9	3	16
	1928	11	12	4	27
Needle tyer	1929		1		1
	1928		1		1
Lodgepole sawfly	1929				--
	1928	1			1
<u>Adelges cooleyi</u>	1929	3		3	6
	1928	4	1		5
Pine butterfly	1929	1			1
	1928				--

It would seem that outbreaks of the mountain pine beetle in white pine still continue to increase in size and number. In 1928 there were 27 outbreaks of this character reported, 18 of which were increasing. During the past season 40 of these outbreaks have been reported with 24 of them being considered as increasing. The Coeur d'Alene, Pend Oreille, Blackfeet, Flathead, and Kaniksu National Forests again report increasing outbreaks of the mountain pine beetle in white pine. New infestations

were also reported from the Coeur d'Alene, Pend Oreille, Cabinet, Flathead, Kootenai, and Kaniksu Forests. On the Kootenai National Forest an alarming situation exists as it would seem that all of the white pine stands of that region are harboring increasing outbreaks. On the Coeur d'Alene National Forest an outbreak of this insect extends throughout practically all of the white pine type. On the Kaniksu and Pend Oreille Forests serious situations also exist, with heavy losses of white pine occurring.

The present status of the mountain pine beetle in lodgepole pine would seem to be even more serious than in previous years. There were 36 reported outbreaks of this insect in lodgepole pine, 25 of which were considered as increasing in severity. The Clearwater, Nezperce, Deerlodge, Flathead, Gallatin, Missoula, Kaniksu, Absaroka, Beartooth, Bitterroot, Blackfeet, Kootenai, Lolo, and Madison National Forests again report outbreaks of the mountain pine beetle in lodgepole pine, with reports of new areas from the Clearwater, Missoula, Kaniksu, Absaroka, Beartooth, Blackfeet, and Kootenai Forests. These data do not include the Beaverhead Forest which was covered by an insect survey, showing that the entire Forest now harbors an infestation which has swept into the region from the Bitterroot and Salmon Forests adjacent. The situation within the lodgepole forests of central Idaho is indeed serious. Though not of such magnitude as the Montana outbreaks, hundreds of thousands of trees are being killed each year with an assurance of even greater losses to follow. To the south of

Yellowstone Park, on the Targhee, Teton, and Wyoming Forests of District 4, an outbreak of this insect in lodgepole pine has been pending for the past three years. Every possible effort is being made to prevent such an occurrence, for in the event of a serious epidemic in this region the valuable aesthetic timber stands of the Park and commercial stands adjacent would be doomed.

The Flathead Forest reports a new increasing outbreak of the Douglas fir beetle, while the Absaroka, and Lewis and Clark again report a decreasing outbreak which had been previously reported. This is a marked reduction over last year when 11 outbreaks were reported from seven Forests. It would seem that the 1929 data are somewhat questionable, as it is hardly probable that 9 of the 11 outbreaks reported in 1928 would have died down completely during the past season.

The reports as submitted show a rather marked reduction in the number and acreage of spruce budworm outbreaks within the District. Only 16 outbreaks were reported in 1929 as against 27 in 1928. Only four of these 16 attacks were reported as increasing, while 11 of the 27 were considered as being in that status in 1928. Old outbreaks were again reported from the Nezperce, Selway, Lolo, and Madison Forests, which were all considered as decreasing, with the exception of one area on the Selway. These data are again questioned, for we know that within the Coeur d'Alene Forest an increasing epidemic of this insect exists, of which no report was received. Serious outbreaks

of this insect still exist within the Cody Canyon of the Shoshone Forest in Wyoming and in the lodgepole pine forests of the southwest corner of the Yellowstone Park and portions of the Targhee National Forest adjacent.

The outbreaks of the lodgepole pine needle tyer and lodgepole sawfly at West Yellowstone, which were responsible for the death of a large acreage of lodgepole pine reproduction, seem to have practically died down. Though these insects are still present in the area they are not in sufficient numbers to cause the death of the trees.

An increasing outbreak of the pine butterfly in yellow pine was reported from the Nezperce Forest. Observations of this insect made in other regions of central Idaho would seem to indicate that abnormal numbers existed.

Recommendations^{were made} for the institution of artificial control measures for outbreaks of the mountain pine beetle in white pine on the Coeur d'Alene, Pend Oreille, Kootenai, and Kaniksu National Forests, while the Deerlodge, Gallatin, and Missoula Forests recommended control for outbreaks of this insect in lodgepole pine. The Jefferson Forest reported an outbreak of the mountain pine beetle in yellow pine and recommended control. No other recommendations for control were made.

1929 FIELD SEASON

Insect Survey

Beaverhead National Forest

Though control measures were not conducted within the Big Hole Basin during the past season, an insect survey was made of the Beaverhead

Forest during the months of August and September. The data secured from this survey indicate the wisdom of discontinuing the Big Hole control project, as during the past season there has been an increase of 350 per cent in the infestation over that of 1928, or 1,100,000 trees attacked in 1929 as against 250,000 in 1928. This project will be continued for a number of years in order to secure more definite information relative to the spread of such infestations.

Kootenai National Forest

During the summer a survey was made of the Kootenai Forest through the assignment of a local forest officer to the task. The purpose of this survey was to determine the exact status and location of all infested areas with the idea of instituting control for their suppression. As a result of this survey outbreaks of the mountain pine beetle were found in practically all white pine stands.

Coeur d'Alene National Forest

To determine the extent and severity of the mountain pine beetle infestation within the white pine stands of the Coeur d'Alene Forest an extensive red-top (trees attacked in 1928) survey was instituted during July. Data secured showed that the infestation instead of being localized in Steamboat Creek, as had been expected, was rather generally distributed throughout the Forest. This extensive survey was followed by a more intensive strip survey during August in order to determine the severity of the 1929 attacks. This latter survey confirmed the data secured from the red-top reconnaissance and indicated that an increasing epidemic of the mountain pine beetle in white pine was generally distributed throughout the Forest.

Madison National Forest

Though the Big Hole Basin control project has been discontinued there has been no cessation in the efforts to prevent the southern spread of this severe epidemic into the Yellowstone Park and valuable commercial forests adjacent. Advantage is being taken of the rather wide timberless tract of land between the Beaverhead and Madison Forests hoping that it will at least act as a partial barrier to an additional southern spread of the insects. An annual survey will be made of the Madison Forest in order to locate all infested trees which will be promptly treated in order to prevent the development of an epidemic to the south of the Beaverhead Forest.

Control Operations

Kootenai National Forest

During the past season control measures were instituted for control of the mountain pine beetle in white pine within O'Brien Creek, West Fork of Quartz Creek, and Bear Creek drainages of the Kootenai National Forest. Some 4,303 trees were treated at a cost of \$23,000. The results secured from these operations were very satisfactory and an attempt will be made during the coming season to clean up as thoroughly as possible the infested areas.

Again in September/¹⁹²⁹ control measures were instituted for the first time on the East Fork of Quartz Creek, and for a clean-up of the Bear Creek drainage. The purpose of these two projects was to check the efficiency of fall versus spring operations. During the fall operation the infested trees were felled, bucked into logs, decked, and burned, as it was found

to be impossible to peel them. The cost of fall work was somewhat higher than the 1929 spring operation on the Kootenai; however, it is believed that with an improvement in the technic of application the fall burning can be conducted as economically as spring peeling. Furthermore, fall operations preserve and foster certain parasites of the mountain pine beetle which are destroyed by spring operations during June.

Coeur d'Alene National Forest

Control measures were instituted within the East Fork of Steamboat Creek for the suppression of a mountain pine beetle outbreak in white pine. Some 1,074 trees were treated at a total cost of \$7,244. The results of this operation, though not all of the trees within the drainage were treated, were very satisfactory, and a much lighter 1929 attack occurred within the treated areas than in the adjacent regions.

Targhee National Forest

Though the Targhee National Forest is in District 4, it would seem that mention should be made of the control operations within that region as it borders Forests of District 1. During the past season some 31,000 lodgepole pine trees were treated at a cost of about \$16,000. The method of treatment employed in this region was to spray the lower portion of the bole with an inflammable oil and burn the trees standing. This method is very successful in this region and destroys the insects under the bark which has been scorched. Improvements are needed in the spraying equipment so that a stream of oil can be thrown to a height of 30-35 feet, which in that region will result in the flames crowning out through a very large per cent of the trees and giving thorough control.

INVESTIGATIONS CONDUCTED BY THE BUREAU OF ENTOMOLOGY

Every possible effort has been made by the Bureau of Entomology to develop a more economical and effective method of controlling mountain pine beetle outbreaks in lodgepole pine and white pine. Studies have been conducted of control projects for the purpose of improving the application of methods now in use. An intensive study has been made of the parasitic and predacious insects found in association with the mountain pine beetle. Through the institution of fall rather than spring control operations full advantage can be taken of the most important parasites, as during spring operations these beneficial insects are destroyed along with the injurious barkbeetles. Life history studies have been conducted of the spruce budworm and fir tussock moth, as well as other forest defoliators within the region, with the idea of developing methods of direct or silvicultural control. An attempt will be made during the coming season to introduce colonies of predacious beetles from the Eastern United States in order to assist in checking the outbreaks of the fir tussock moth which exist in forested areas adjacent to this District.

CONTROL PLANS FOR THE 1930 SEASON

Though their institution depends upon the necessary appropriation of funds, the following control projects have been recommended for the season of 1930:

Mountain Pine Beetle in White Pine

Coeur d'Alene National Forest	\$150,000
Kootenai National Forest	25,000
Clearwater National Forest	10,000
Glacier National Park	4,000

Mountain Pine Beetle in Lodgepole Pine

Targhee, Wyoming, and Teton National Forests \$50,000

Spruce Budworm

Spraying roadsides of Cody Canyon, Wyoming 10,000

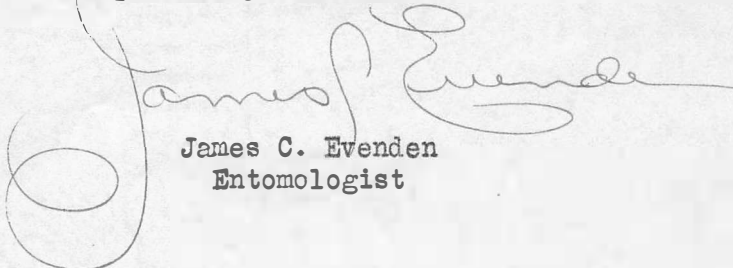
CONCLUSIONS

From an analysis of all available sources of information relative to the status of insect conditions it would seem that we are confronted with the most serious barkbeetle situation which has ever been experienced within the pine forests of District 1. It is impossible to attempt to forecast the future of the epidemics which now exist within the white pine and lodgepole pine forests of this region as they may continue for a number of years, or they may die down within a very short time.

In studying the ranger reports it would seem that there has been little, if any, improvement in the quality of the data submitted during the past season. These reports are requested in order that data which are essential may be secured for the proper planning of control for the protection of our forests from the attacks of insects. It is only from this source that sufficient information can be secured from which a picture of the status of conditions within the District can be drawn and proper plans instituted for the suppression of incipient outbreaks. The value of this picture depends entirely on the accuracy of the data submitted by the rangers. It is feared that in many instances these reports have been submitted with very little, if any, data, and for the most part with no actual field examinations of the conditions reported upon. Combating insect epidemics is an expensive procedure, requiring

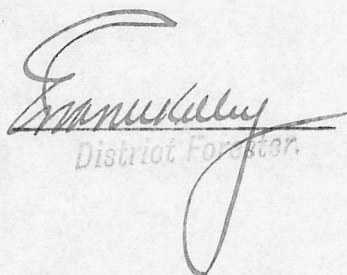
large sums of money and resulting in the destruction of large volumes of timber. ^{In} the treatment of sporadic outbreaks while in their incipiency, though perhaps the cost per tree would be greater, a far greater saving of timber will be accomplished, and over a period of years a smaller expenditure of funds required than for the combating of an epidemic. To secure the information essential for the efficient planning of artificial control measures with the idea of preventing epidemics rather than controlling them, we must turn to the rangers for our source of information.

Respectfully submitted,



James C. Evenden
Entomologist

Approved



Emmet Kelly
District Forester

SUMMARY TABULATION OF RANGER REPORTS

Forest and Area	Insect	Host	Increasing Decreasing	First Reported	Control Recommended
<u>CLEARWATER N.F.</u>					
Moose City Basin	MPB	WP LP	Decreasing	1929	No
North Fork River	MPB	WP	"	1927	No
Beaver Creek	S.Budworm	DF WF	"	1929	No
<u>COEUR D'ALENE N.F.</u>					
Lakes District	WPB MPB	YP WP	Normal	1929	No
East Eagle Creek	MPB	WP	"	1928	Yes
Beaver Creek	MPB	WP	Increasing	1929	Yes
Little North Fork Drainage	MPB	WP	"	1925	Yes
Steamboat, Flat and Yellow Dog Creeks	MPB	WP	"	1929	Yes
Grizzly Creek	MPB	WP	?	1929	?
Burnt Cabin Creek	MPB	WP	Increasing	1928	To be cut 1930
Haystack Creek	MPB	WP	Normal	1929	To be cut, 1930
Little North Fork Watershed	MPB	WP	Increasing	1929	?
<u>NEZPERCE N.F.</u>					
W.Fk. Rapid	Pine Butterfly	YP	Increasing	--	No
Rhett Cr. Drainage	MPB ?	?	Normal	1929	No
Ranger District No.4	S.Budworm	DF WF SP AF	Decreasing	--	?
Ranger District No.3	S.Budworm	WF DF	"	1924	No
Elk City District	S.Budworm	DF WF Sp.	"	1924	No
Bargamin Cr., Moose Cr., Otterson Cr., Lower Big) Mallard Cr.,) Hell's Half Acre	S.Budworm MPB	DF WF LP YP	" Increasing	1924 1926	? ?
<u>PEND OREILLE N.F.</u>					
Smith Creek	MPB	WP	Increasing	1924	Yes
Boundary Creek	MPB	WP	"	1928	Yes
Dodge and Fall Creeks	MPB ?	WP	"	1929	No
Johnson Creek	MPB	WP	"	1929	Yes
Lightning Creek	MPB	WP	"	1928	Yes
Twin Creek	MPB	WP	"	1929	Yes
<u>SELWAY N.F.</u>					
Middle Fork District	S.Budworm	WF DF ES	Normal	1927	No
Meadow Cr. District	S.Budworm	WF DF ES	Decreasing	1927	No
Lochsa Ranger District	S.Budworm	AF WF DF Sp.	Normal	1928	?
Selway River Drainage) Cub and Running Creeks)	S.Budworm	DF	Increasing	1928	No
Iron Mtn. & Bear Grass Units	S.Budworm	WF Sp.	Increasing	1926	No
Moose Creek District	S.Budworm	WF Sp.	"	1927	No

Forest and Area	Insect	Host	Increasing:	First	Control
ST. JOE N.F.			Decreasing:	Reported:	Recommended
Ward's Peak	Spruce gall aphid	Spruce	Increasing	1929	?
Ward's Peak District	MPB	WP	Stationary	1929	No
<u>ABSAROKA N.F.</u>					
Snowy Mt.	DFB	DF	Stationary	1928	?
Mill Creek	?	LP DF	Decreasing	1929	No
Hellroaring Creek	DFB	DF	Increasing	1927	No
Shields Ranger District	MPB	LP	Decreasing	1929	No
<u>BEARTOOTH N.F.</u>					
Basin Creek	MPB ?	LP	Increasing	1929	?
<u>BEAVERHEAD N.F.</u>	No ranger reports submitted				
<u>BITTERROOT N.F.</u>					
Rye Creek to Grid Creek and West Side	MPB	LP YP	Increasing	1924	?
East Fork Bitterroot)	MPB	LP YP WBP	"	1924	No
East Fork Bitterroot)	DFB	DF	Decreasing	1924	No
Little Boulder	MPB	LP	Increasing	1925	No
<u>BLACKFEET N.F.</u>					
Canyon and Kimmerly Crs.	MPB	WP	Increasing	1928	?
Little N.Fk. Ranger Dist.	MPB ?	LP	Normal	1929	No
Tally Lake District	MPB	LP	Decreasing	1929	No
Pleasant Valley District	MPB ?	LP	Normal	1929	?
Fortune District)	S. subscaber? AF		Increasing	1927	No
Clarence Creek)	MPB	LP WBP	Decreasing	1927	No
Upper N.Fk. District	MPB	LP	Stationary	1927	No
<u>CABINET N.F.</u>					
Noxon Ranger District	MPB	WP	?	1929	No
<u>CUSTER N.F.</u>					
Poker Jim Ranger District	WPB ?	YP	?	1929	No
Stagville Draw	WPB	YP	Decreasing	1929	No
White Tail District	WPB	YP	Stationary	1928	No
<u>DEERLODGE N.F.</u>					
Georgetown and Echo Lakes	MPB	LP	Increasing	1926	Yes
Deerlodge District	MPB	LP YP	Decreasing	1921	No
Fleecer District	MPB	LP	Increasing	1928	Yes
Toll Mountain	MPB	LP	"	1929	Yes
Boulder District	MPB	LP	?	1927	No

Forest and Area	Insect	Host	Increasing: Decreasing:	First Reported:	Control Recommended:
<u>FLATHEAD N.F.</u>					
Krause Creek Basin	MPB	WP	Increasing	1927	No
Bunker Creek	MPB	LP	?	1927	?
So. Fork Flathead River	MPB	LP	Normal	1929	?
Skyland Creek Ridge	DFB	DF	Increasing	1929	No
<u>GALLATIN N.F.</u>					
Upper Gallatin	Spider mites <i>Chermes cooleyi</i>	DF	?	1928	No
West Gallatin Drainage	<i>Chermes cooleyi</i>	Sp DF	?	1929	No
Ranger District No. 2	MPB	LP	Normal	1929	Yes
Hyalite Creek	MPB	LP	Increasing	1929	Yes
Ranger District #3	<i>Chermes cooleyi</i>	Sp. DF	"	1929	No
Ranger District No. 4	<i>Chermes cooleyi</i>	Sp. DF	?	1929	No
Fridley Creek	Spruce budworm	Sp. DF	Decreasing	1927	No
Ranger District No. 5	<i>Chermes cooleyi</i>	DF	Increasing	1929	No
Brackett Creek	MPB	?	?	--	--
<u>HELENA N.F.</u>					
Cabin Gulch Drainage	Spruce budworm	DF	Increasing	1924	No
<u>JEFFERSON N.F.</u>					
South Fork of Judith	WPB	YP	Stationary	1928	No
S.F. Peoples Creek	MPB	YP	Stationary	1929	Yes
<u>KOOTENAI N.F.</u>					
Burnt Creek, E.F. & Head	MPB	WP	Increasing	1929	Yes
Spread Creek	MPB	WP	"	1929	Yes
Ruby Creek	MPB	WP	Normal	1929	Yes
Star Creek	MPB	WP	Increasing	1929	Yes
Keeler Creek Drainage	MPB	WP	Stationary	1929	No
Callahan Creek	MPB	WP	Increasing	1929	Yes
Upper Quartz & Seventeen Mile	MPB	WP	Decreasing	1929	Area treated in 1929
Bear Creek	MPB	WP	"	1926	Area treated in 1929
Bobtail Creek	MPB	WP	"	1929	do
Swamp Creek	MPB	WP LP	Increasing	1929	No
Ten Mile Drainage	MPB	WP	Normal	1928	No
North Fk. Dodge Creek	MPB	LP	Normal	1929	No
Copeland Creek	MPB	LP	Increasing	1929	Yes
Pete Creek	MPB	WP LP	Decreasing	1929	Yes
Zimmerman Hill	MPB	LP	Increasing	1929	Yes
Garver Creek	MPB	LP	"	1929	Yes
Fowler Creek	MPB	LP	"	1929	Yes
Cool Creek	MPB	WP LP	"	1929	Yes
Waper Creek	MPB	LP	"	1929	Yes
O'Brien Creek	MPB	WP	Decreasing	1927	Yes
Pine Creek	MPB	WP	Increasing	1929	--
Rabbit Creek	MPB	LP	Decreasing	1929	--

Forest and Area	:	Insect	:	Host	:	Increasing:	First	Control
						Decreasing:	Reported:	Recommended

LEWIS AND CLARK N.F.

Dearborn District	DFB	LPB	LP	DF	Stationary	1929	No
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LOLO N.F.

Albert Creek	WPB		YP		Decreasing	1928	--
Edith Creek	WPB		YP		Decreasing	1927	--
Deer Creek	MPB ?		LP		Increasing	1929	?
" "	Pine butterfly		WP		Normal	1929	--
Moose Creek	Spruce budworm		WF	DF			
			Sp		Decreasing	1927	No
Squaw & Papoose Crs. Drainages	S. budworm		WF	Sp	Decreasing	1925	No

MADISON N.F.

Stonewall	MPB		LP		Increasing	1929	No
Meadow Creek	MPB		P. flexilis	?		1929	?
Cascade Creek	S. budworm		Sp		Stationary	1927	No
Madison River Basin	MPB		WBP		Decreasing	1928	No
" " "	Needle tyer		LP		"	1924	No
" " "	<u>Ips oregoni</u>		LP		"	1924	No

MISSOULA N.F.

Gold Creek	MPB		LP		Increasing	1925	?
Grant Creek	MPB ?		LP		Increasing	1929	?
Rattlesnake Cr. Drainage	MPB		LP		Increasing	1929	Yes
Monture District	MPB		LP		Decreasing	1925	No
Douglas Cr., Little Gold) Cr., Upper & Lower Willow) Crs., Marshall Cr., N.Fk.)	MPB		LP	YP	Increasing	1925	No
Flint Cr., East Fk. Rock) Cr., Elk & Trout Creeks)							
Middle Fork Rock Creek	MPB		LP		Increasing ?	1928	?

KANIKSU N.F.

Sullivan Lake	MPB		WF	LP	WBP	Increasing	1929	--
Experiment Station Area	MPB		WF			?	1929	Yes
King's Lake	MPB		WF			Increasing	1929	No
Squaw Valley	MPB		WF			Normal	1928	No
Beaver Creek	MPB		WF			Increasing	1929	?
N. Fork Granite Creek	MPB		WF			Increasing	1928	--